

ABSTRACT OF THE DISCLOSURE

A workstation stores a novel seismic classification software package (known as the "Seisclass software"). During execution of the Seisclass software by a processor of the workstation, the workstation processor will present a plurality of attribute data, describing the characteristics of a geological feature, simultaneously as "attribute data sets" and as "points in attribute space". Characteristic groupings and attribute dependencies can be detected, either automatically or with manual support using a-priori knowledge. Clusters, groups of data sharing particular characteristics, are classified, either automatically or with manual support. The classification result is presented as a "class data set" allowing the association of the attribute characteristics with data set positions. The type of attributes and their dependencies may allow a classification of a geological feature, such as a sub-surface, with respect to its reservoir properties, such reservoir properties including, for example, the possible existence of underground hydrocarbon deposits in an earth formation.